

# What Do America's "Traditional" Forms of School Choice Teach Us about School Choice Reforms?

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The majority of U.S. states are currently considering or have recently passed reforms that increase the ease with which parents can choose a school for their children (Tucker and Lauber 1995). At first view, these reforms seem to take elementary and secondary education into wholly unknown territory. Yet this view neglects the fact that choices made by American parents have traditionally been an important force in determining the education their children receive. Parents' ability to choose among fiscally independent public school districts (through residential decisions) and to choose private schools (by paying tuition) is such an established feature of American education that it is almost taken for granted. Yet, through these choices, American parents exercise more control over their children's schooling than do many of their European counterparts. Of

course, American parents are not all equally able to exercise choice. High-income parents routinely exercise more choice because they have more school districts and private schools within their choice sets. In addition, there is significant variation in the degree of choice across different areas of the country. Some metropolitan areas, for instance, contain many independent school districts and/or a number of private schools. Other metropolitan areas are completely monopolized by one school district or have almost no private schooling.

The purpose of this paper is to answer three related questions. First, what general facts can we learn by examining the traditional forms of school choice in the United States? In particular, we need to understand the general relationship between school choice and five factors: (1) student achievement, (2) student segregation (along lines of ability, income, and taste for education, as well as race and ethnicity),<sup>1</sup> (3) school efficiency, (4) teachers' salaries and teacher unionism, and (5) the degree to which parents are involved in and influence their children's

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schools. Second, how do the general facts that we garner from traditional school choice carry over to analyses of reforms such as charter schools, vouchers for private schools, and open enrollment programs? Third, what information do we still need if we are to predict accurately the effects of reforms? And, what empirical strategies might we pursue to get such information?

For evidence, I draw upon previous empirical work contained in several studies.<sup>2</sup> Although I briefly sketch the empirical strategy of these studies, this paper does not attempt to present the results in detail. Rather, the goal is to summarize the results and discuss their implications for school choice reforms.

### TRADITIONAL CHOICE AND THE ISSUES

There are two basic forms of school choice in the United States. The first is choice among public school districts that have a substantial degree of fiscal and administrative autonomy. The second is choice between public and private schools. In this section, I take each in turn. Later, I briefly discuss intradistrict choice—a scheme that contains some characteristics of the two basic forms of choice.

### TRADITIONAL CHOICE AMONG PUBLIC SCHOOL DISTRICTS

Households choose among public school districts by selecting a residence. The degree to which households can exercise this form of choice depends heavily on the number, size, and residence patterns of the school districts in the area centered around their jobs. Some metropolitan areas in the United States have many small school districts with reasonably comparable characteristics. Boston, for instance, has seventy school districts within a thirty-minute commute of the downtown area and many more within a forty-five-minute commute. Miami, on the other hand, has only one school district (Dade County) that covers the entire metropolitan area. People with jobs in rural areas typically have only one or a few alternative school districts to choose from.

This form of choice (among public school districts) has several important properties. First, districts that are good, efficient providers of schooling tend to be

rewarded with larger budgets. This fiscal reward process works because a district's budget nearly always depends on property taxes, which in turn depend on home prices within the district, which in turn depend on how the marginal home buyer values the local schools. Rewards for good, efficient provision occur as long as districts have a significant amount of fiscal autonomy (especially over marginal revenues and expenditures).<sup>3</sup> The fiscal reward process tends to be sustainable over the long term because it depends on decentralized choices. This process is in contrast to centralized reward systems—for example, financial or other “merit” awards for successful school districts that are distributed by the state. These systems tend to be unsustainable because states cannot, *ex post*, credibly adhere to processes that reduce (in relative terms) the amount of money going to failing school districts.

The second important property of traditional choice among public school districts is that parents who prefer different amounts of school spending and different types of schools sort themselves into different districts. As a result, each district tends to be more homogeneous than the area, and the residents of each district tend to vote for taxes and schools that approximately fulfill their spending and curriculum desires. This means that districts offer somewhat differentiated schooling that follows local parents' preferences to a certain degree.

Consequently, choice among public school districts creates residential patterns (residential segregation) that mirror households' desired levels of school spending. This result is in contrast to residential patterns that purely reflect households' incomes or housing desires. Of course, desired school spending depends partly on income, but it also depends on the extent to which a household prefers to spend money on schooling relative to other goods or investments. Low-income and minority households are the most likely to be prevented from making reasonably optimal investments in their children's schooling. The ability of these households to choose residences in more than one district may be severely constrained by their budgets or by discrimination.

Another consequence of choice among public school districts is that parents' preferences have some influ-

ence over local schools. Any given school district budget, for instance, is allocated more according to parents' preferences (than, say, according to the preferences of school staff or the state department of education) when parents have more choice among districts. This is true simply because when parents have more choices, school budgets are more elastic with respect to parents' preferences. Therefore, policy is more responsive to those preferences.

Evidence of what happens when an area has more choice among public school districts is useful mainly for analyzing charter school reforms and open enrollment reforms. A charter school receives a charter to educate public school students and a "tuition" payment (from public revenues) for each pupil it enrolls. The school admits students nonselectively or at random. Charter schools are supposed to have a high degree of administrative autonomy from local public schools and to have as much fiscal autonomy as a stable tuition payment per pupil can give them.<sup>4</sup> Thus, opening a charter school has some, but not all, of the features of creating additional public school districts to compete with the initial district.

An open enrollment program allows students to attend schools in districts outside their districts of residence. Whether or not an open enrollment program closely resembles an expansion of choice among public school districts depends largely on the financial transfers that accompany transferring students. If a program has financial transfers that closely simulate the fiscal pressures of choice among public school districts, it can be regarded as a means of intensifying traditional choice among public school districts by reducing mobility costs and by allowing many more households to be on the margin between districts. Most open enrollment programs, however, have financial arrangements that do *not* simulate the fiscal pressures of choice among districts. For instance, the transfer is often small compared with the receiving district's average expenditure per pupil. Also, the money that accompanies the transferring student often comes wholly or partly from the state rather than from the sending district.

In summary, traditional choice among public school districts is helpful for analyzing charter school and open enrollment reforms because all three types of choice

give us a general sense of (1) the bases on which parents choose among schools, (2) how public schools differentiate themselves given that they are all subject to public scrutiny and public constraints, (3) whether public providers can and do react to competition for students by improving their programs, (4) how the degree of choice among public providers affects parents' willingness to pay for private school alternatives, and (5) how students self-segregate among schools when they are given more choices at the same time that the receiving schools cannot discriminate among them.<sup>5</sup> Traditional choice among public school districts is less helpful for understanding charter school and open enrollment reforms to the extent that the financial arrangements of the reforms have quite different properties than traditional choice. In addition, charter schools and open enrollment programs depend on the sufferance or cooperation of local school districts, making them less sustainable than traditional choice programs.

#### TRADITIONAL CHOICE BETWEEN PUBLIC AND PRIVATE SCHOOLS

The second way in which parents have traditionally been able to exercise choice in the United States is by enrolling their children in private schools. Private school tuition in America is not subsidized by public monies (as it is in some European countries), so parents can afford private school only if they can pay both tuition and local taxes supporting public schools.<sup>6</sup> Partly as a result, private schools tend to enroll fewer than 15 percent of American elementary and secondary students. This percentage reached a peak of just under 15 percent in the early 1960s. Although it declined to 10 percent by 1980, it has since rebounded to 12 percent.

There is tremendous variation in the schooling offered in and tuition paid for private schools in the United States. Approximately 90 percent of private school students attend a school that is affiliated with a religious group, including a variety of Christian and non-Christian groups. Tuition for these schools ranges from a token amount ("\$100 or whatever parents can pay") to more than \$10,000. The remaining 10 percent of private school students attend schools with no religious affiliation; these

institutions include many of the college-preparatory, “independent” schools that charge tuition of \$5,000 or more. More than 65 percent of U.S. private school students attend a school affiliated with the Catholic Church; these institutions vary from modest parochial schools asking for token tuition to elite, college-preparatory schools that compete with the “independents” for students. The modal private school student in the United States attends a Catholic school that is parochial or diocesan and charges a tuition of about \$800 (for elementary school) or \$2,000 (for secondary school).

A key feature of American private schools is that they typically subsidize tuition with monies from donations or (less often) endowment income. The share of schooling costs that is covered by subsidies is larger in schools that serve low-income students; even relatively expensive private schools, however, charge subsidized tuitions. For instance, Catholic elementary schools, on average, cover 50 percent of their costs with donations from local households and the local diocese (they are also implicitly subsidized by teachers who are members of religious orders and accept minimal payment). Catholic secondary school tuitions are less subsidized: on average, they represent about 75 percent of the actual costs of schooling. Even the most expensive religiously affiliated private schools in the United States—schools affiliated with the Friends (Quakers)—charge tuitions that average only 80 percent of their costs.<sup>7</sup> Note that schools that serve low-income households and charge highly subsidized tuitions are frequently oversubscribed and must ration school places using waiting lists.

Some cities and areas of the United States have significantly larger shares of students in private schools than do others. The shares for metropolitan areas, for instance, range from 35 percent to roughly 0 percent. This variation is created by historical accident, by the donations available for subsidizing private schools in an area, and by the quality of public schools. I return to these sources of variation below.

Choice between private and public schools has several important properties. First, private schools that efficiently offer high-quality education tend to be rewarded

by gaining more applicants. At the very least, the larger applicant pool allows the private school to be more selective. More often, a larger applicant pool allows a private school to expand. Symmetrically, public schools that do not offer quality education efficiently are likely to lose students to private schools. The students who are drawn away are, for any given public school, those with the greatest taste for the type of education offered by private schools. Second, private schools are likely to have an ambiguous impact on the finances of local public schools. On the one hand, an increased supply of private schools tends to draw into the private school sector many parents who might have supported generous public school spending if their children had remained in public schools. This phenomenon tends to decrease voter support for public school spending. On the other hand, an increased supply of private schools tends to draw into the private sector many students who otherwise would have had to be educated at public expense. This phenomenon tends to increase public school spending *per pupil*.

An increase in private school availability should change patterns of residential segregation for the following reasons: private school parents who would choose to live in districts with expensive public schools if private schools did not exist would be willing to live in less expensive districts. Such changes in residential segregation, however, are limited by the fact that private school parents prefer to live with neighbors who have similar professions, educations, and preferences for other local public goods. For instance, private school parents are unlikely to live with low-income neighbors just to avoid paying taxes to support moderately expensive public schools. Finally, private schools put mild pressure on public schools to pay the same input costs that they (private schools) pay. In particular, private schools are less likely to be unionized and to accept supply contracts for political reasons. If they do not pay union wage premiums and are charged competitive prices for supplies, their lower costs indirectly put a little pressure on public schools to be cost efficient. The pressure is small because the fact that private school parents continue to pay taxes to support public schools drives a considerable price wedge between private and public schools with comparable costs.

Evidence about the effects of traditional private school choice is most useful for predicting the effects of vouchers. Some properties of vouchers are quite similar to those of traditional private school choice: successful private schools are rewarded with larger pools of applicants; the least efficient public schools are the most likely to lose students. The fiscal impact of vouchers on public schools is ambiguous, although it is possibly less positive than the fiscal impact of private school competition on public schools. The difference is that vouchers are typically funded with monies from the local public schools. Some students who would attend private schools even in the absence of a voucher program will use vouchers: this fact will have a negative impact on per pupil spending in the sending district. This effect, however, will be offset by the positive impact on per pupil spending that occurs whenever a voucher is used by a student who would have, in the absence of a voucher program, attended a public school. This positive impact occurs because all voucher amounts proposed thus far have been significantly smaller than per pupil spending in the sending public school district. Some of the indirect fiscal impacts of vouchers on per pupil public school spending are positive as well. For instance, some parents with a high taste for education are likely to remain in districts that they would have abandoned for suburban districts if vouchers were not available. Keeping these parents has a positive effect on a district's property prices and, thus, on the tax base that supports public schools.

#### INTERACTIONS BETWEEN THE TWO TRADITIONAL FORMS OF SCHOOL CHOICE

We expect that the two traditional forms of school choice will substitute for one another to some degree. Parents who can choose a district that offers schooling and a per pupil cost closer to their desires have less incentive to send their children to private school. Of course, public and private school choice are unlikely to substitute for one another completely because the two sectors function under somewhat different constraints. For instance, parents with strong preferences for religious education cannot satisfy such preferences in the public sector; parents with strong pref-

erences for public schooling cannot satisfy such preferences in private schools.

Similarly, we expect some interaction among the reforms. Availability of charter schools is likely to reduce the use of private school vouchers or open enrollment programs. Logically, the more one reform offers a needed type of choice, the less the alternative reforms will be desired or used. For instance, the less autonomous a charter school is, the more parents will want to use private school vouchers. In addition, areas that already have substantial amounts of choice among public school districts or choice of private schools are unlikely to make heavy use of a charter school program or an open enrollment program (unless the latter has perverse fiscal arrangements). Also, areas with substantial amounts of choice among public school districts are less likely to make heavy use of vouchers. The same cannot be said of areas that already have substantial amounts of private school choice. Since vouchers give a transfer to any parent already using private schools, vouchers would be highly utilized in areas with high shares of private schools. The means testing in most proposed voucher programs attempts to reduce transfers to parents already using private schools.

#### EVIDENCE ON THE EFFECTS OF COMPETITION AMONG PUBLIC SCHOOL DISTRICTS

To determine the effects of competition among public schools, we might compare metropolitan areas that have had long-term differences in parents' ease of choice among districts.<sup>8</sup> Ease of choice depends on both the number of districts in the area and the evenness with which enrollment is spread over those districts. Choice is easier in a metropolitan area where parents choose among twenty districts of equal size than in an area where three-quarters of enrollment falls into one of twenty districts; choice in the latter area is easier than in an area with only one school district. The inverse of a Herfindahl index based on districts' enrollment shares is a good measure of the ease of choice because it incorporates both these facts—the number of districts and evenness of districts' enrollment shares.<sup>9</sup>

The sizable differences between metropolitan areas in the amount of choice available are largely a result of historical accident and geography. However, we should consider that districts' enrollments can reflect their success: a highly successful and efficient district might attract a disproportionate share of its metropolitan area's enrollment. It might even attract smaller districts to consolidate with it. These phenomena would tend to make simple comparisons of metropolitan areas with public school enrollment concentrated in a few districts versus metropolitan areas with enrollment spread evenly over many districts biased against finding positive effects of competition among districts. Formally, the observed degree of choice available among public school districts may be simultaneously determined with the school quality experienced by the typical student.

To obtain unbiased estimates, we need to identify geographic or historical factors that increase a metropolitan area's tendency to contain many small, independent school districts. We need instrumental variables related to the demand for independent school districts but unrelated to contemporary public school quality. I use the fact that metropolitan areas with more streams had more natural barriers and boundaries that increased students' travel time to school and caused the initial school district lines to be drawn up into smaller districts.<sup>10</sup>

This estimation strategy allows me to control for a wide range of background variables that might also influence schools or students. For instance, I control for the effect of household income, parents' educational attainment, family size, family composition (for example, single-parent households), race, region, and metropolitan area size, as well as for the local population's income, racial composition, poverty, educational attainment, and urbanness. Also, because I have good measures of self-segregation by school and school district (for racial, ethnic, and income segregation), I can also differentiate the effects of choice among school districts on self-segregation from those on student achievement or school efficiency.<sup>11</sup>

My best estimates of the effects of competition among public school districts are gauged in terms of a one-standard-deviation increase in the Herfindahl index. This

corresponds to a substantial increase in the degree of choice among districts; for instance, it is the difference between having three and thirteen equal-sized districts or the difference between having four and a very large number (say, one hundred) of equal-sized districts. An increase of one standard deviation in the degree of choice among districts causes a small (and statistically significant) improvement in student achievement. Students' reading and math scores improve by about 2 percentile points, for instance. However, an increase of one standard deviation in choice among districts causes a large improvement in schools' efficiency. This increase occurs because the small improvement in student achievement takes place even though schools lower their per pupil costs by 17 percent when they face a standard deviation increase in choice. What is striking is the opposite sign of these effects: an increase in choice improves student achievement even while it accomplishes substantial cost savings. The implications for schools' productivity (the ratio of student achievement to dollars spent) are powerful.

What about the effects of competition among districts on the segregation of students? These effects turn out to be insignificant for a reason that may not occur to us at first glance. The degree of racial, ethnic, and income segregation that a student experiences is related to the degree of choice among *schools* in a metropolitan area, but not to the degree of choice among *districts*. (In fact, the point estimates have the "wrong" sign for the latter relationship.) In other words, students are just as segregated in schools in metropolitan areas that contain only a few districts as they are in metropolitan areas that contain many districts. Households sort themselves into neighborhoods inside districts; neighborhoods and schools are small enough relative to districts so that district boundaries have little effect on segregation. This result demonstrates how important it is to compare realistic alternatives. The realistic alternative to a metropolitan area with a high degree of choice among districts is not a metropolitan area in which all schools are perfectly desegregated and every student is exposed to similar peers. The realistic alternative is a metropolitan area with a low degree of choice among districts and schools that exhibit substantial segregation.

## EVIDENCE OF THE EFFECTS OF PRIVATE SCHOOL COMPETITION

Choice among public school districts has several other effects worth noting. First, choice among districts and choice between public and private schools are substitutes for one another. An increase of one standard deviation in the degree of choice among districts lowers the share of children who attend private schools by about 1 percentage point (on a base of about 12 percentage points). When parents have more choice within the public sector, they are more likely to be satisfied by their public options, and they are less likely to choose a private option.

Second, when parents have more choice among districts, they tend to be more involved in their children's schooling.<sup>12</sup> For instance, an increase of one standard deviation in the degree of choice causes one out of every three parents to visit the school in the course of a year and causes school administrators to say that parents have a more significant influence on school policy.<sup>13</sup> Furthermore, parents appear to induce schools to actually pursue the policies that parents *say*, on average, they want in surveys: more challenging curricula, stricter academic requirements, and more structured and discipline-oriented environments. For instance, one standard deviation in the degree of choice in a metropolitan area raises by 8 percent the probability that a school's *regular* mathematics sequence ends in a twelfth-grade course that contains at least some calculus.<sup>14</sup>

Finally, the beneficial effects of choice among districts on schools' productivity depend on districts' having a significant degree of fiscal independence. In states such as California, where districts depend almost entirely on state per student allocations for their budgets, the positive effects of choice on student achievement and cost savings are reduced by about one-half. This is probably because successful schools are not rewarded through the property tax/budget process for their efforts to improve achievement or reduce costs. This result has implications for analyses of reforms: researchers should consider that reforms do not always give participating schools sufficient fiscal independence to allow them to benefit financially from their own success.

To determine the effects of private school competition on public schools and public school students, we can also compare areas with and without substantial private school enrollment. However, low-quality public schools raise the demand for private schools as substitutes for public schools. Therefore, such simple comparisons would confound the effect of greater private school competitiveness with the increased demand for private schools where public schools are poor in quality. Formally, private school enrollment is likely to be endogenous to (partly caused by) public school quality, and this endogeneity would lead simple estimates to be biased toward finding that private school competition had negative effects on public schools.

To obtain unbiased estimates, we need to identify factors that increase the supply of private schools in an area and that are unrelated to public school quality. Formally, we need instrumental variables that shift the supply of private schools and that are unrelated to the demand for private schools that is generated by low public school quality. I use the fact that a denomination's private schools have more resources with which to provide tuition subsidies in areas that are densely populated by that denomination. Since religious composition of an area is largely a matter of historical accident, it is not likely to have an independent effect on public school quality. Areas with higher Catholic population shares, for instance, have a larger share of teaching services donated by members of religious orders (worth 30 to 35 percent of costs) and provide a larger share of Catholic school income through donations from the diocese and local households (25 to 50 percent of costs). Thus, denominations' population shares fulfill the conditions for a good instrument: they are positively correlated with the supply of private schools but are likely to be uncorrelated with the part of the demand for private schools that is generated by public school quality. Catholic population shares provide the best instrumental variables not only because school subsidies are a relatively high-priority use of Catholic Church funds, but also because Roman Catholicism is spread across the entire United States rather than concentrated in one state or one region.

Roman Catholicism is also associated with many ethnic groups, unlike some other denominations, which are associated with only one or two ethnic groups.

Note that this estimation strategy allows me to control for a variety of background factors that might be correlated with both the demand for private schools and public school quality (or public school students' performance). For instance, I control for the effect of a household's belonging to a denomination. If *being Catholic*, say, affects a household's demand for public school spending or the achievement of its children, this effect is controlled for (and not confounded with the effect of more or less private school competition). I also control for the effect of certain ethnic group concentrations in an area, for the effect of racial and ethnic homogeneity in an area, for the effect of religious homogeneity in an area, and for the religiosity of an area. Numerous other background factors are controlled for: family income, the share of households in poverty, parents' educational attainment, family size, family composition (single-parent households), urbanness, population density, and region of the country.<sup>15</sup>

My best estimates of the effect of more competition from private schools suggest that if private schools in an area receive sufficient resources to subsidize each student's tuition by \$1,000 then the achievement of *public* school students rises. This is true whether the measure of achievement is test scores, ultimate educational attainment, or wages. The effect on mathematics and reading scores is an 8 percentile point improvement. The effect on educational attainment is an 8 percent increase in the probability of graduating from high school and a 12 percent increase in the probability of getting a baccalaureate degree. The effect on wages (for those who work later in life at ages twenty-nine through thirty-seven) is a 12 percent improvement.<sup>16</sup>

Interestingly enough, the estimates indicate that competition from private schools does not have a significant effect on public school spending per pupil.<sup>17</sup> This is probably because the two forces described above offset one another. On the one hand, an increased supply of private schools tends to draw into the private school sector many parents who might have supported generous public school

spending if their children had remained in public schools. This phenomenon tends to decrease voter support for public school spending. On the other hand, an increased supply of private schools draws into the private school sector many students who would otherwise have had to be educated at the public's expense. This phenomenon tends to increase public school spending *per pupil*.

What about the effects of private school competition on the self-segregation of students among schools? I will not dwell on these estimates, because their ability to predict the effect of a private school voucher program is limited. The reason is that the estimates are based on private schools that have a religious affiliation, mainly Catholic schools. In contrast, proposed voucher programs often exclude private schools with a religious affiliation and always constrain private schools that accept vouchers to either accept all voucher applicants or to accept some random sample of them.

The estimates do have general applicability in one regard, however: all the self-segregation effects are very small. There are two reasons: First, public schools are *already* quite segregated along lines of race, ethnicity, parents' income, and students' performance. When people imagine the effect of increasing private school availability, they sometimes conjure up a notional public school that is perfectly desegregated. The effects of private school competition on such a notional public school might be dramatic. Even if we could estimate such effects, however, they would be irrelevant since actual public schools do not correspond closely to this ideal. The actual self-segregation effects of traditional private school competition are small simply because a large increase in self-segregation cannot be obtained by sorting out an already segregated public school. The second reason that self-segregation effects are small is that an increase in private school competition typically allows self-segregation in public schools to increase slightly while self-segregation in private schools decreases slightly. These effects tend to offset one another.

My best estimates suggest that if private schools in an area receive enough resources to subsidize tuition by \$1,000, segregation along lines of race, ethnicity, income, and student performance decreases at private schools by

small, but statistically significant, amounts. At the same time, segregation along these lines changes at public schools by amounts that have positive point estimates but are statistically not different from zero.<sup>18</sup>

Finally, note that both private school competition and competition among public schools tend to hold down input costs. Specifically, both types of competition constrain the salary increases that teachers' unions gain for their members (the union wage premium of 12 percent is reduced by about one-third for a standard-deviation increase in competition among districts and by about one-half for a \$1,000 subsidy for private schools).<sup>19</sup> This result parallels a standard result from private industry: increased competition in the market for a product (in this case, the market offering schooling to students) tends to decrease the wage premia earned by unionized workers and other inputs that are provided by suppliers with market power.

#### EVIDENCE ON THE EFFECTS OF INTRADISTRICT CHOICE PROGRAMS

Intradistrict choice has been utilized by a number of large school districts for some time. The least dramatic forms of intradistrict choice are magnet or alternative schools, to which a student typically applies because of a preference for an alternative curriculum or schooling environment. In the more dramatic forms of intradistrict choice (Manhattan's District 4 or Cambridge, Massachusetts), every student must actively express a preference for a school. Intradistrict choice shares some features of the two traditional forms of school choice discussed above. In particular, the fact that parents and students make an active choice is likely to make them more committed and involved in schooling. However, intradistrict choice programs rarely give schools the degree of fiscal or curricular autonomy enjoyed by independent school districts or private schools. It is important to recognize that a district that gives fiscal or curricular autonomy to a school in a given year has not given the school long-term autonomy unless the district can bind itself to not revoke that autonomy. Such binding often proves to be politically impossible. For instance, intradistrict choice programs sometimes exhibit long-term fiscal incentives that are perverse because the district cannot,

ex post, resist taking money from successful schools and giving it to unsuccessful schools.

The evidence on intradistrict choice is at an exploratory stage. My own work demonstrates only that simple estimates (comparing districts that have intradistrict choice with districts that do not) are badly biased.<sup>20</sup> The bias arises because districts do not randomly enact intradistrict choice programs. These programs are usually associated with the hiring of a superintendent who is given a free hand to "turn around" a district that has recently experienced sharp decreases in student achievement. It is difficult to create a control group of schools that can be compared effectively with this type of school. Even before-and-after studies do not enable us to disentangle the effects of intradistrict choice from the effects of getting a new superintendent who is paid more and given greater latitude than previous administrators.<sup>21</sup>

#### LESSONS FOR REFORM FROM TRADITIONAL SCHOOL CHOICE

The evidence on the effects of traditional school choice gives us several lessons that are helpful for analyzing reforms.

- First, public schools can and do react to competition by improving the schooling they offer and by reducing costs. They are not passive organizations that allow their students and budgets to be withdrawn without responding. Realistic increases in the competition they face produce significant improvements in students' test scores, educational attainment, and wages.
- Second, public schools' responses do not depend just on whether they lose students; the responses also depend on the fiscal rewards and penalties attached to gaining or losing students. When competition has little fiscal implication, a public school is less likely to react. When cost competition is weakened by a large price wedge (like that between public and private schools), public schools reduce costs less than they do when cost competition is on a more level playing field (like that between two similar public school districts).
- Third, the segregation effects of increasing school choice via reforms are likely to be small because schools in the United States (not merely districts) are already quite segregated. To predict accurately the

effects of reforms on segregation, one must consider a realistic alternative, not an idealized public school with perfect desegregation.

- Fourth, parents who have greater choice are more involved in their children's schooling. Parents' influence on school policy, which is greater when choice is greater, will reflect, on average, their stated preferences for tougher curricula and stricter school atmospheres. Note, however, that greater choice is also likely to make schools more diverse through parental influence because like-minded parents will be better able to group together in schools. (I have no evidence on this last point.)
- Finally, different types of school choice substitute for one another to a limited degree.

Given these lessons, what other pieces of information do we need in order to analyze school choice reforms? Three information deficiencies stand out. Since we know that the fiscal impact of a choice program is an important determinant of the program's effect on schools, the financial arrangements of charter school programs, open enrollment programs, and vouchers will be key determinants of their effects. These financial arrangements often receive little thought, and they are chosen more for convenience and political reasons than because they generate good financial incentives. States that want to avoid perverse financial incentives should consider financial arrangements that purposely mimic the fiscal impacts of the two traditional forms of school choice. In order to estimate the effects of more dramatic fiscal incentives, we will need to observe actual choice reforms that carry a variety of financial arrangements.

The second information deficiency pertains to the long-term sustainability of reforms. All three of the reforms discussed create schools or programs that have less long-term autonomy than do the schools that compete in the two traditional forms of school choice. Public school districts have indefinite lifetimes and will not have difficulty raising tax revenues as long as parents want to send their children to the schools. Private schools have similarly

indefinite lifetimes and can raise tuition revenue so long as they attract parents. While some charter school laws are written to give a high degree of fiscal autonomy to charter schools, all charter schools must get their charters renewed by the state (at least) and depend on other organizations to decide their per pupil payments. It remains to be seen whether charters and per pupil payments are politically maintainable when and if charter schools become successful competitors for the revenues and students of public school districts. Most open enrollment programs have even less inherent political sustainability. These programs, at least as written thus far, require the ongoing cooperation of local public school districts. (The receiving district must almost always cooperate voluntarily, although involuntary cooperation is sometimes exacted from the sending district.) The voucher programs passed to date depend on the sufferance of the sending district, but some proposed programs make the vouchers less dependent on that district. Careful analyses of district-level and state-level politics will be necessary to predict the long-term sustainability of all three reforms.

Finally, traditional school choice gives us only limited information about the supply response we can expect from private schools under a voucher program or from charter schools. Supply responses are estimated in the analyses of choice among public schools and choice between public and private schools. (For instance, giving private schools additional resources that are equivalent to a \$1,000 tuition subsidy creates a 4.1 percentage point increase in Catholic school enrollment, from a base of about 10 percent.) However, proposed charter school programs and voucher programs sometimes take us beyond the range where extrapolation from traditional school choice results is reasonable. A voucher of \$3,500 available to *all* poor students, for instance, would produce a long-term supply response that would be difficult to predict since the availability and long-term horizon exceed those of current voucher programs (like Milwaukee's), and the voucher amount exceeds those of most current private school subsidies.

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## ENDNOTES

1. Some people unfortunately associate the word “segregation” exclusively with racial segregation. I am using it to describe segregation of students along a number of lines. It could also be described as student sorting, and it encompasses a variety of phenomena, including segregation by ability, sometimes called “cream skimming” or “cherry picking.”

2. See Hoxby (1996a, 1996b, 1996c, 1996d, 1997a, 1997b). Copies of unpublished papers can be obtained by sending a written or electronic request to the author.

3. It is important to note that the fiscal reward process works through the residential decisions of *marginal* home buyers. If marginal home buyers choose to locate in other districts because district X is a poor or inefficient provider of schooling, then all home prices in district X fall. There is no need for all households to relocate for all houses’ prices to affect the districts’ fiscal rewards. See Hoxby (1996a) for details.

4. In practice, however, some states’ charter school laws allow the schools very little administrative or fiscal autonomy. For instance, a charter school has little administrative autonomy if it is automatically subject to all clauses of the local teachers’ unions’ collective bargaining agreements. Similarly, a charter school may have little fiscal autonomy if its tuition payments depend completely on the per pupil spending of the local school district (regardless of the charter school’s own success).

5. Public schools must admit all students in their attendance district. Charter schools and open enrollment schools must admit a random sample of students who are eligible and interested in attending.

6. There are and have been some minor public subsidies for private school expenses, including small tuition tax deductions and credits. Some states also require local public districts to provide certain textbooks and bus transportation to private school students.

7. Although tuition understates the true cost of private schooling, private schooling does cost significantly less than public schooling on average. Over the entire period from 1976 to the present, per pupil costs in private schools have always been between 50 and 60 percent of contemporary per pupil costs in public schools.

8. For this section, see Hoxby (1997a).

9. A Herfindahl index based on enrollment shares is as follows. Suppose a metropolitan area has  $J$  school districts, which we index by  $j=1, \dots, J$ .

Suppose each school district has a share,  $s_j$ , of total metropolitan area enrollment. Then, the inverse Herfindahl index is

$$-\sum_{j=1}^J s_j^2 .$$

When there is no choice in a metropolitan area because there is only one public school district, the inverse index is equal to -1. As more districts are added and as enrollment is spread more evenly over those districts, the inverse index gets closer to zero.

10. This typically took place about the time of Anglo-American settlement, which varies with the area of the country. Many of the original petitions for district boundaries cite streams as a reason for not extending the district lines. Streams are by far the most common natural boundary for school districts. Note, however, that many of the streams that are preserved in boundaries are small and have never had industrial importance. Today, many of the boundary streams are of negligible importance in travel.

11. The equations estimated can be summarized as follows. The main equation to be estimated is of the form

$$y_{ik} = aH_k + X_{ik}\beta + X_k\zeta\delta + \varepsilon_k + \varepsilon_{ik} ,$$

where  $y$  is an outcome such as a student’s test score or a school’s per pupil spending,  $i$  indexes students or schools (depending on the outcome),  $k$  indexes the metropolitan area,  $H$  is the inverse Herfindahl index that measures the degree of choice among public school districts,  $X_{ik}$  is a vector of background variables that describe the student or school (for instance, the race and gender of the student or the homogeneity of household incomes for students who attend the school), and  $X_k$  is a vector of background variables that describe the metropolitan area (for instance, its racial composition and size). The two-tiered error structure adjusts the standard errors for the fact that the degree of choice varies only at the metropolitan area level.

There is also an implied first-stage equation that estimates the effect of streams on the concentration of public school districts in the metropolitan area:

$$H_k = S_k\gamma + \bar{X}_{ik}\kappa + X_k\lambda + v_{ik} ,$$

where  $H_k$ ,  $\bar{X}_{ik}$ , and  $X_k$  are as above (except that  $\bar{X}_{ik}$  is effectively averaged for the area), and  $S_k$  is a vector of variables that measure the prevalence of large and small streams in the metropolitan area.

12. See Hoxby (1996d).

13. Specifically, the measure of parental influence over school policy rises by two-thirds of one standard deviation.

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ENDNOTES (*Continued*)

14. Interestingly, an increase in the degree of choice encourages grade inflation, which I measure by comparing students' course grades with their performance on national standardized exams in the same subjects. This finding suggests that although parents want their children to be exposed to harder "real" curricula, parents are loath to set higher "nominal" standards for their children—perhaps because local grade deflation might be misinterpreted by colleges in the admissions process.

15. The equations estimated can be summarized as follows. The main equation to be estimated is of the form

$$y_{ik} = \mu V_k + X_{ik}\nu + X_k\pi + \nu_k + \epsilon_{ik} ,$$

where  $y$  is an outcome such as a student's wage or a school's per pupil spending,  $i$  indexes students or schools (depending on the outcome),  $k$  indexes the area (metropolitan areas and counties, depending on the urbanness),  $V$  is the average tuition subsidy offered by private schools in area  $k$ ,  $X_{ik}$  is a vector of background variables that describe the student or school (for instance, the student's own religion or the racial homogeneity of the school), and  $X_k$  is a vector of background variables that describe the area (for instance, its income composition or religiosity). The two-tiered error structure adjusts the standard errors for the fact that average tuition subsidies vary only at the area level.

There is also an implied first-stage equation that estimates the effect of denominations' population shares on the tuition subsidies offered by private schools:

$$V_k = D_k\rho + \bar{X}_{ik}\theta + X_k\tau + \omega_{ik} ,$$

where  $V_k$ ,  $\bar{X}_{ik}$ , and  $X_k$  are as above (except that  $\bar{X}_{ik}$  is effectively averaged for the area), and  $D_k$  is a vector of population shares of denominations  $m=1, \dots, m$  in area  $k$ .

16. These are instrumental variable estimates of the effect of a \$1,000 subsidy for private school tuition where the equations are as in endnote 15. The coefficient estimates and their standard errors are, respectively, 7.9 (3.5); 2.2 (1.0); 3.3 (1.1); 12 (5.7). See Hoxby (1996b, 1997b).

17. See Hoxby (1996b).

18. Statistical significance here refers to asymptotic statistical significance at the 10 percent level. Income segregation is measured using students' free-lunch eligibility. See Hoxby (1997b).

19. See Hoxby (1996c).

20. See Hoxby (1996d).

21. In addition, before-and-after studies suffer from bias produced by "Ashenfelter's dip." This dip is simply the phenomenon that treatment (in this case, intradistrict choice) is frequently assigned to individuals (in this case, school districts) who have recently experienced a negative departure from their own history. Since individuals and districts would typically experience mean reversion anyway (and return to their historic paths), simple before-and-after studies tend to exaggerate the positive effect of treatment.

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## REFERENCES

- Hoxby, Caroline.* 1996a. "Are Efficiency and Equity in School Finance Substitutes or Complements?" *JOURNAL OF ECONOMIC PERSPECTIVES* 10, no. 4 (fall).
- . 1996b. "The Effects of Private School Vouchers on Schools and Students." In H. Ladd, ed., *HOLDING SCHOOLS ACCOUNTABLE*. Washington, D.C.: Brookings Institution.
- . 1996c. "How Teachers' Unions Affect Education Production." *QUARTERLY JOURNAL OF ECONOMICS* 111, no. 3 (August).
- . 1996d. "When Parents Can Choose, What Do They Choose?" Unpublished paper, Harvard University.
- . 1997a. "Does Competition among Public Schools Benefit Students and Taxpayers?" Revision of NBER Working Paper no. 4979 (1994).
- . 1997b. "Do Private Schools Provide Competition for Public Schools?" Revision of NBER Working Paper no. 4978 (1994).
- Tucker, A., and W. Lauber.* 1995. *SCHOOL CHOICE PROGRAMS: WHAT'S HAPPENING IN THE STATES*. Washington, D.C.: Heritage Foundation.

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